Ordering number: EN 2564

Monolithic Linear IC

No.2564

SANYO

LA3241

Preamp for Compact Cassette Recording-only Use

The LA3241 is a preamp IC for compact cassette player recording-only use. The distinctive feature of the LA3241 is that it contains mechanical switches which have been so far connected externally as peripheral parts.

Applications

- Radio-cassette tape recorder/tape deck-use stereo compact cassette player

Features

- Wide ALC : ALC_W=60dB typ
- 2-step ALC level : ALC_{VO}=0.42V,0.65V
- On-chip electronic select switches permitting selection of normal/metal tape and normal/higher speed mode recording equalizer
- On-chip mike amp : Gain 25dB typ fixed
- Low-voltage operation because the Schottky barrier diode is used for ALC rectifier diode.
- Wide operating voltage : V_{CC}=4.5 to 14.0V

Functions

- Recording preamp x2
- Mike amp x1
- ALC x1
- Electronic switch x6

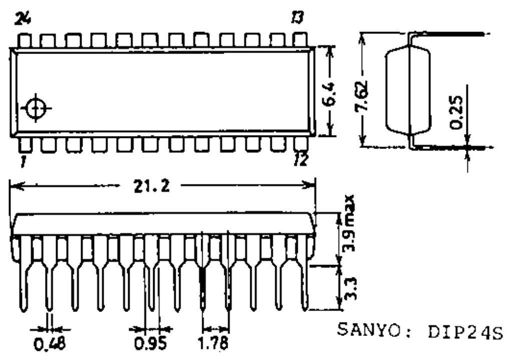
Maximum Ratings at Ta=25°C

			unit
Maximum Supply Voltage	V_{CC} max	16	V
Allowable Power Dissipation	Pd max	720	mW
Operating Temperature	Topr	-20 to +75	°C
Storage Temperature	Tstg	-40 to +125	°C

Operating Conditions at Ta=25°C

			unit
Recommended Supply Voltage	V_{CC}	6	V
Operating Voltage Range	V_{CC} op	4.5 to 14.0	V

Package Dimensions
(unit: mm)
3067

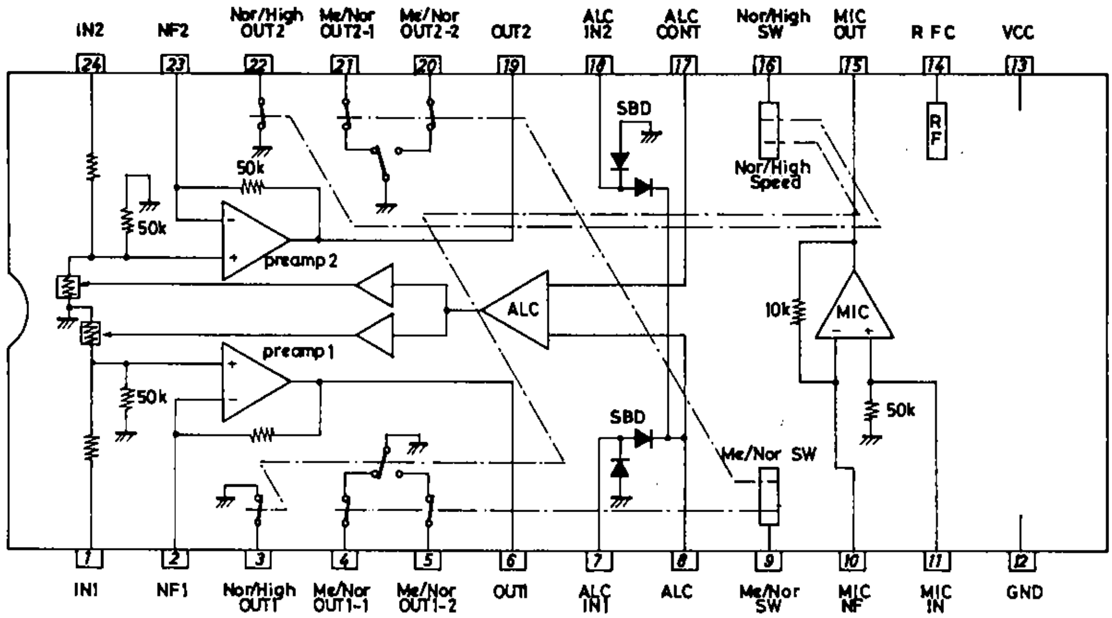


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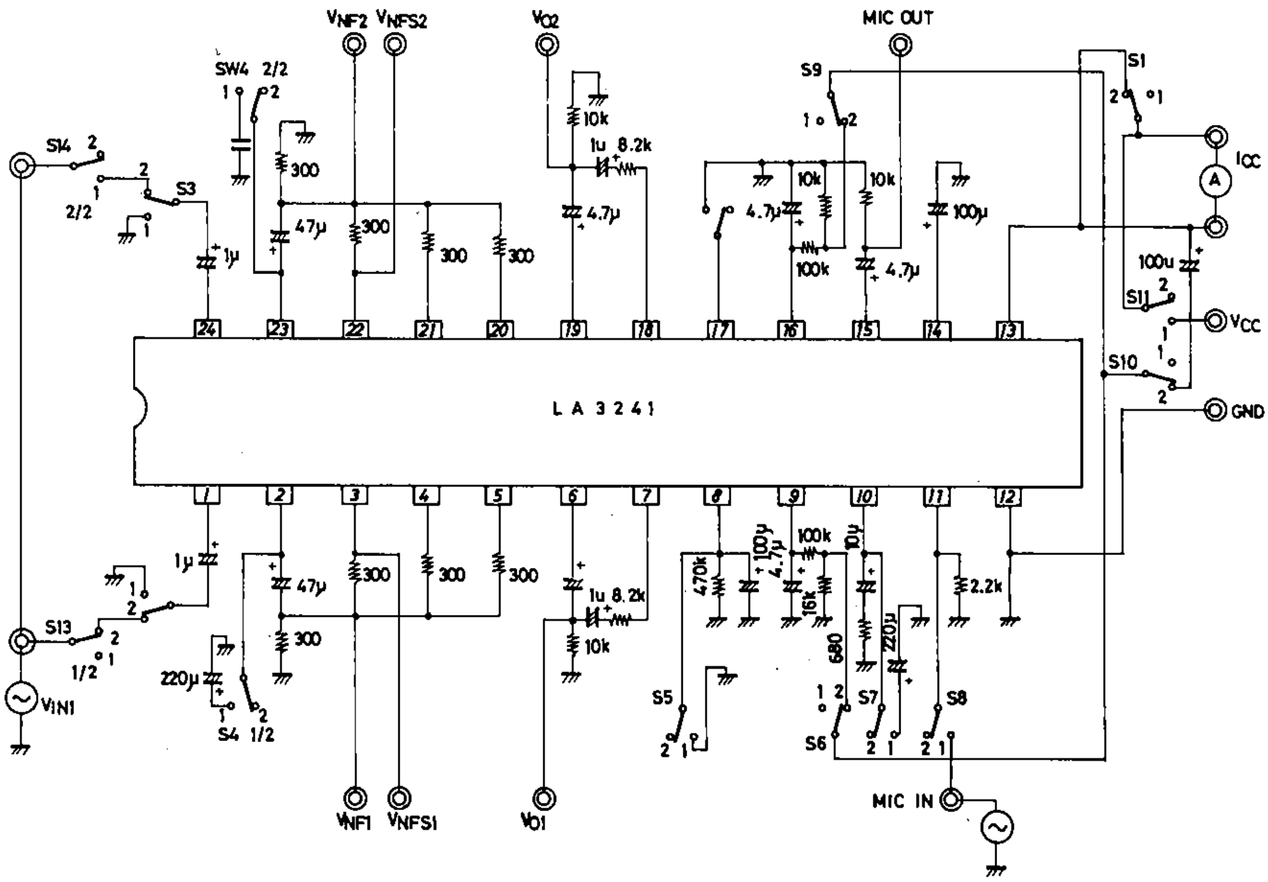
Operating Characteristics at Ta=25°C, V_{CC}=6V, R_L=10kohms, f=1kHz, 0dB=0.775V

			min	typ	max	unit
Quiescent Current	I_{CCO}	Me/Nor, Nor/High SW off	5	7.5	12	mA
Quiescent Current	I_{CCS}	Me/Nor, Nor/High SW on	12	16	20	mA
[REC Amp]						
Voltage Gain (Open)	VG_{O1}		75	85		dB
Voltage Gain (Closed)	VG1	Vo=0dBm	42.5	44.5	46.0	dB
Total Harmonic Distortion	THD1	Vo=0.4V		0.1	0.7	%
Maximum Output Voltage	V_O max	THD=1%	0.7	1.0		V
Equivalent Input Noise Voltage	V_{NI1}	Rg=2.2kohms, BPF:20Hz to 20kHz		1.1	1.7	uV
Input Resistance	R_{I1}		40	50	60	kohm
Crosstalk	CT1	Between REC amps	50	60		dB
	CT2	REC amp→Mike amp	50	75		dB
Channel Balance	CB	Vi=-50dBm		0	2	dB
[Mike Amp]						
Voltage Gain	VG_{O2}		40	50		dB
Voltage Gain	VG2	V_O=0dBm	23	25	27	dB
Total Harmonic Distortion	THD2	V_O=0.4V		0.1	0.7	V
Maximum Output Voltage	V_{O2}	THD=1%	0.8	1.1		V
Equivalent Input Noise Voltage	V_{NI2}	Rg=3.6kohms, BPF:20Hz to 20kHz		1.2	1.7	uV
Input Resistance	R_{I2}		40	50	60	kohm
Crosstalk	CT3	Mike amp→REC amp	45	60		dB
[ALC]						
ALC Range	ALC_W	Input range when output distortion becomes 1% after ALC begins to be applied.	55	60		dB
ALC Balance	ALC_B	Output difference between CH1 and CH2		0	2	dB
ALC Distortion	ALC_{THD}	Vi=-40dBm		0.15	0.80	%
ALC Output Voltage	ALC_{Vo}	Vi=-40dBm, pin17 Gnd	0.33	0.42	0.53	V
		pin17 open	0.56	0.65	0.76	
Crosstalk	CT4	Between REC amps	45	60		dB
	CT5	REC amp→Mike amp	50	70		dB
[Switch]						
ON-State Resistance	R_{on}			30	70	ohm
DC Feedback Resistance	R_{F1}		40	50	60	kohm

Equivalent Circuit Block Diagram

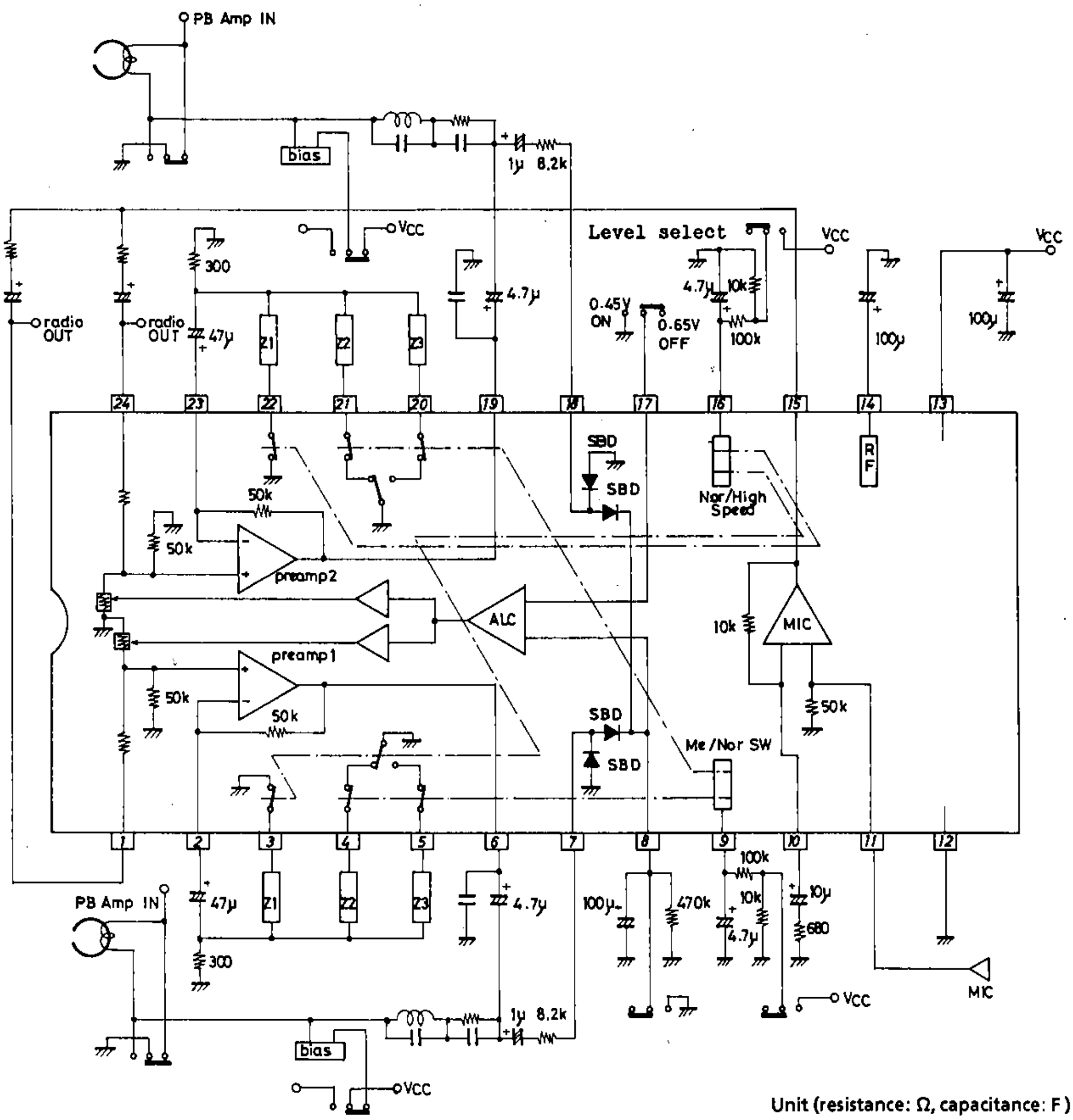


Test Circuit Diagram



Unit (resistance: Ω, capacitance: F)

Sample Application Circuit



(Notes)

1. The electronic select switch level is approximately (V_{CC}-0.9)/2.
2. REC amplifier NF parameters Z1 through Z3 should be selected to accommodate the recording level and frequency response that will be required in metal/ normal tape and normal/higher speed modes.
3. Z1 through Z3 may be configured with coil "L", capacitor "C", and resistor "R".
4. The electronic select switch mode illustrated above shows no V_{CC} being impressed on Me/Nor SW ⑨ or Nor/High SW ⑩ .
5. The ALC level on pin 7 should not be changed over while V_{CC} is impressed.